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FSX User Manual for the Milviz F-86F-30

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F-86F-30 Sabre

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Military Visualizations

F-86F Sabre User Guide for FSX

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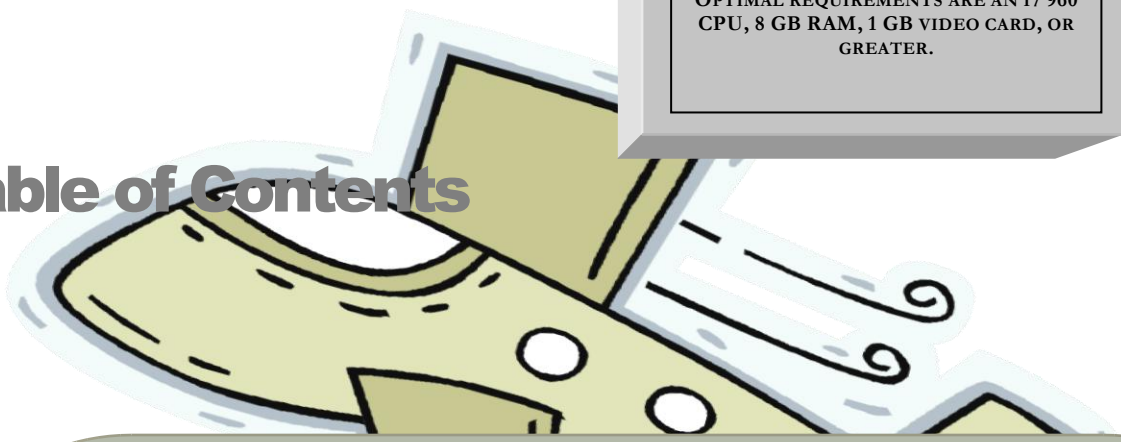
Required specs:
This product requires FSX Acceleration. It is also designed for newer systems. Minimum requirements are a 2.6 Core 2 Duo, 4 gigs of RAM, 512 MB Video Card and 1.2GB of free disk space. Optimal requirements are an i7 960 CPU, 8 GB RAM, 1 GB video card, or greater.



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Hit-and-Run background of the F-86F-30 Sabre

Three-Time Record Breaker, MIG Killer, & 1st Godzilla fighter!

Even the most modest attempt at covering the background of North American Aviation's **F-86F-30** coherently would be such a large task as to render itself beyond the scope of this guide. There is an incredible amount of information on this airplane and if nothing else, what will strike you after reading some of it, is just how much ground this amazing aircraft covered in its relatively short lifespan.

The Milviz F-86F-30 may inspire many of you to look into some of the incredible accomplishments of this airplane and the men who flew it. As far as military aircraft go, the F 86 in general had a very short career as an active-duty fighter. In addition, the plane held three world speed records in level flight and even broke the sound barrier in a powered dive two weeks before Chuck Yeager did it with the Bell X1 in level flight.

The Intention of This User Guide

It is the intention of **Milviz** to deliberately keep this Guide short and stay as close to the reference of the **Milviz F-86F-30** and how it relates to **FSX** as possible. So that said, this Guide is in no way intended to be used as a guide to operate a real F-86. On the other hand, if that's all you've got and you find yourself in the cockpit flying at 600 kts. 40,000 feet up, then go for it, you've got nothing to lose.

Please keep in mind there may be switches, lights, gauges, etc. that do not operate in this model. These may be redundant emergency systems or systems that, due to the limitations of FSX code, would not have worked properly. In these instances **Milviz** chose to omit their operation but they may still be listed in some of the following sections.

All references in this guide that pertain to the F-86F's speed, performance, and/or maneuvers, are meant so when the plane is in a "clean" configuration and carrying at least 75% fuel unless otherwise stated.*

The **accompanying North American PDF** covers handling and flight characteristics of the F-86 under various loads and conditions in great detail. The **NA manual** plays an important role in successfully handling the F-86F-30 in its entirety. The User Guide on the other hand, is simply **meant to highlight a few key points** to help get you in the air quicker.

***The Milviz F-86F-30 is preloaded with 950 pounds of 50 caliber ammunition when it opens in FSX. You can remove the ammunition through the FSX aircraft panel.**

When most '*Simmers*' hear "**Milviz**" today, they make a connection between the product and a high-quality re-creation. **Military Visualizations** has proven itself over and over again and won itself a top name in a very competitive industry.

The **Milviz F-86F-30** is held to the same rigid, high quality standards that **Milviz** has been known for with aircraft like their **T-38A** and **F-15E** just to name a few. As stated earlier, and as most F-86 enthusiasts will already know, there were many variations of this airplane. Some had slats like the earlier F-86E and some didn't. In fact, the later F-86's even had a completed, enclosed, radome nosecone giving the plane's profile an entirely different appearance.

Milviz stuck to one version of the F-86 and gave their full focus, talents, and effort to the **F-86F-30** like the one flown by Lt. James Thompson : "**The Huff**".

"THE HUFF": According to records, Lieut. James Thompson chose to have this Dragon scheme painted on his plane shortly after taking down a MIG-15 during his stint in the Korean War with the 51st Fighter Interceptor Wing, 39th Fighter Interceptor Squadron. The plane's identification was the FU–897 /51–2897.

Godzilla and the F-86F!? Yep, the **F-86F-30** even had a first in the record books as a movie star! Apparently, immediately following the Korean War, the F-86F Sabre went toe to toe with **Godzilla** in what was to be their simultaneous movie debut in 1954.[2]

[2] Reported in Toho Kingdom: http://www.tohokingdom.com/aliens_sdf/f86f_saber_jet.htm

Just as the heading implies, the specifications below are basic and meant as a reference point for those who like the challenge of working with the mathematical equations required when options such as additional fuel tanks, rockets, and bombs are attached to the F-86F. (See the NA PDF for more detail)

I'm here to tell you that you can go to 10 different sources and get 10 different sets of specifications regarding the F-86F-30. The specs below were chosen as an 'average' more or less, so please don't e-mail us with corrections, we already know.

Manufacturer	North American Aviation
Engines	One; General Electric J–47–GE–27
Thrust	6090 lbs. apprx
Overall Length	37.5 ft
Height	14.7 ft
Wingspan	39.5 ft
Empty Weight	10,500 lbs. [w/fuel 15, 175lbs.]
Takeoff Weight	20,650 lbs. max.
Ceiling	45,000 ft plus
Speed	680 mph max. [Cruise 525mph]

The **F-86F-30** was praised by the pilots who flew them, but you have to admire the pilots themselves as well. That's because the F-86F did not have an autopilot and once the aircraft got above 400 kts the stability became far more difficult to maintain and required a lot of skill and endurance.

In fact, holding the aircraft trim and level at 400+ knots becomes such a task that **Milviz** supplied a "**Trim slide adjustment**" in the "**Misc.**" configuration page. Move the slide toward the minus direction and you're basically decreasing how many 'trim increments' will be applied with each 'click' you make in adjustment. However, keep in mind that this will also slow down the time it takes to reach the desired trim position. Of course, the opposite holds true if you slide it toward the right of center.

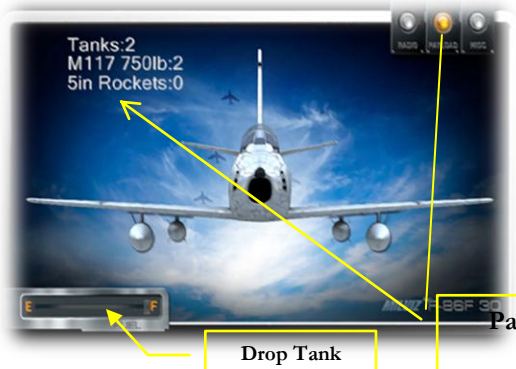
The F-86F had a "**Flying Tail**" in which the stabilizer and the elevator were interconnected, moving in relation to each other and making the entire horizontal tail act as a primary control.† **Milviz Developers** replicated this perfectly in FSX.

†This design, which incorporated the use of the entire horizontal tail section to move up and down, kept the plane from buffeting as it approached the speed of sound.

As with other **Milviz** designs, the F-86F-30 has an "**Aircraft Configuration Menu**" that can be pulled up with the option "shift +2" command. This is a very important panel in the starting procedure and load-out options of the aircraft. When the configuration menu first opens it will display the '**Channel Freq. Selector**' page. For now, just remember that the external power must be connected or the battery switch must be on for this panel to work.

Radio
Preset Frequency Selections

You will note that there are three selections you can make in the top right corner of the panel. The first is "**Radio**", the center one is "**Payload**", in the last is "**Misc.**". Each selection is obvious and self explanatory. As you may have guessed when you select "**Payload**", you'll be taken to a screen where you can select the number of rockets, bombs, and external fuel tanks to add.



Drop Tank Fuel Level Control

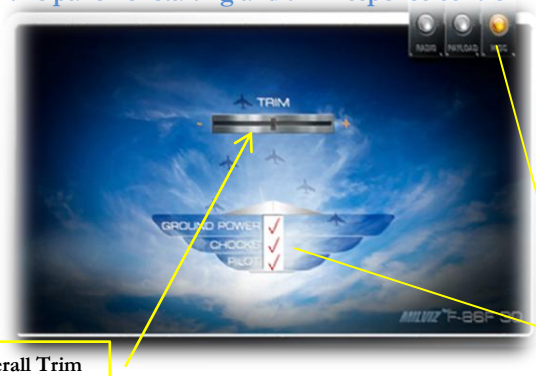
Payload & Selections

The only thing important to remember here is to be sure to place your cursor on the leading letter of your selection, i.e.; place the cursor on '**T**' when selecting "**Tanks**", or '**5**' if you wish to select the "**Rockets**" etc.

You should also remember that the **Configurator** will not allow you to add any combination of rockets, bombs or fuel tanks if the addition exceeds the maximum take-off gross weight*. It's also important to remember that you will be affecting your flight dynamics and characteristics as you add or remove ordinance and/or fuel.

Figure 1: Use this panel for starting and trim response control

The final panel is the "**Misc. Panel**" and this one is all about starting the aircraft and a little help controlling it as well. I'll tell you more about that one in the "**Startup Procedure**" but for those who don't know it, the F-86F is typically started using an external power supply. Yes, it does have a 'starter/generator' on board but this is an emergency in-flight option. There's more on that in the pages ahead.



Overall Trim Adjustment for easier handling.

Misc, (Starter) & Options

***If you find that the number of rockets or bombs in the diagram suddenly stopped matching what is actually showing up on the aircraft, just click the "Tanks" option once or twice and it'll straighten out. I was able to 'confuse' it with 'fast clicking'.**

The cockpit layout of the **F-86F-30** is pretty basic and easy to memorize. On your right you have your **Center Console**, (Figure 2), which pertains to your Radio Compass & Frequency Selection options.

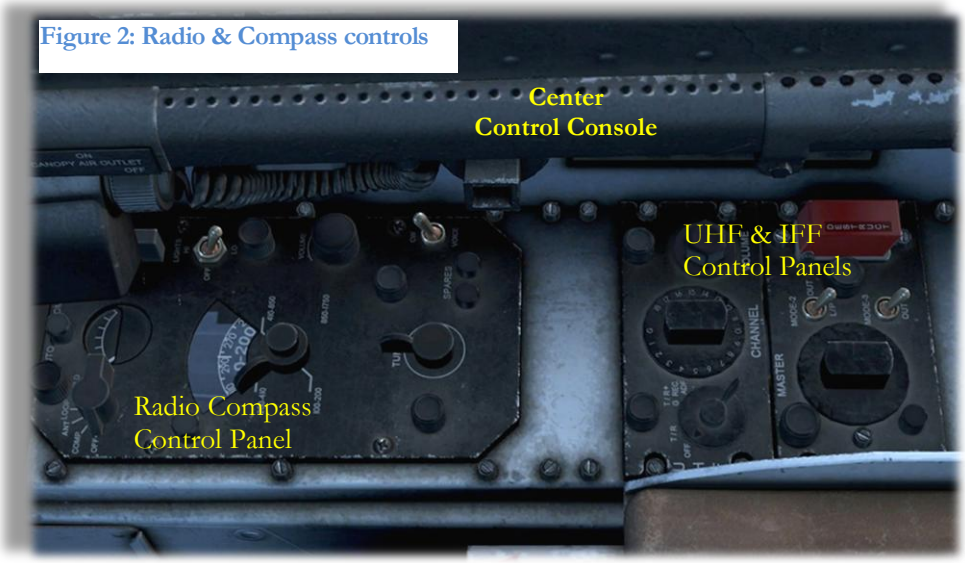
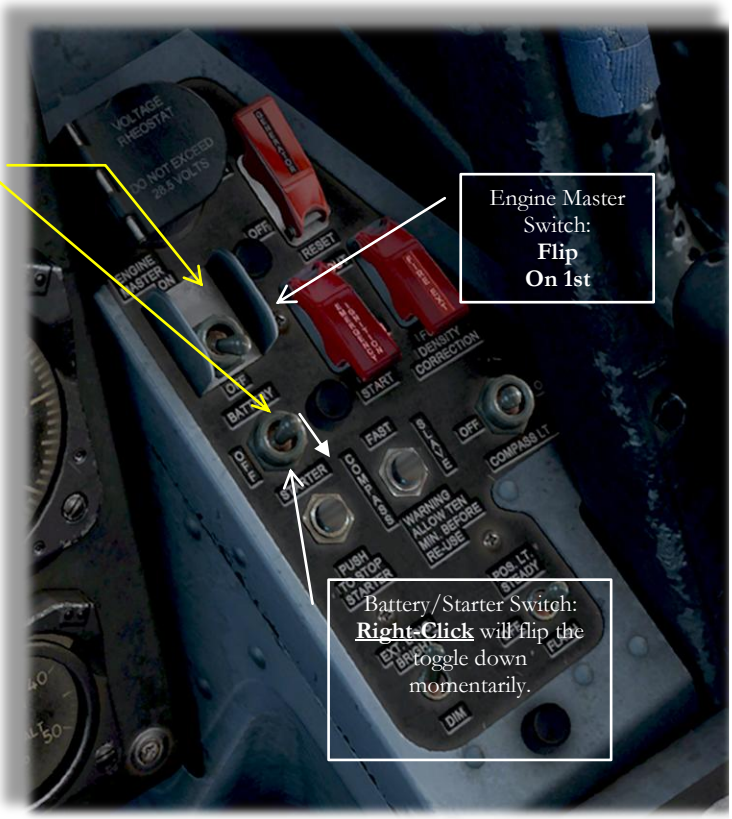


Figure 2: Radio & Compass controls

See page 5 for a more direct reference to quickly starting the **Milviz F-86F** if you're in a hurry!

And on your Forward Right Console is your **Power System** panel, and just above that is your **Standby Compass**, (not shown).

These two switches play a key role when it comes to starting the aircraft: the top one is the **Engine Master Switch**, and the one directly underneath it is the **Battery/Starter Switch**. Those two and a little bit of external power and the "fire is lit".** (… More or less)



In the following pages there will be a simple, straightforward guide to each switch on this console and the others as well.

However, when it comes to the right-side consoles of the F-86F, if you aren't going to use the radio, start the plane, or put out a fire, you can pretty much forget about it with the exception of the **External Lights**.

This leaves you free for where the real action is; the left-side consoles.

**Though the F-86F-30 does have an on-board power system, (a starter/generator combo), it's application is for emergencies such as an in-flight restart as shown on page 24.

GAUGE & INDICATOR LIGHT ID REFERRENCE

Figure 3: Cockpit Instrument Panel

1	Accelerometer	**11**	Fuel Flow/Totalizer		A	Oxygen Warning Indicator (inoperative)
2	Hydraulic Pressure Gauge	**12**	Cabin Pressure		B*	Main Instrument Inverter Failure Indicator
3	Oil Pressure Gauge	**13**	Fuel Gauge		C*	Both Inverter Failure Warning Light
4	Exhaust Temp Gauge	**14**	Vertical Velocity Indicator		D*	Main Radar Inverter Failure Indicator
5	Fuel Pressure Gauge	**15**	Turn and Slip Indicator		E	Trim Position Indicator (Take off)
6	Radio Compass	**16**	Altimeter		F*	Flight Control Alternate Hydraulic System Indicator/Switch (FCAH)
7	Airspeed Indicator, (Knots)	**17**	Mach Speed Indicator		G	Generator Warning Indicator
8	Directional Gyro, (slaved)	**18**	Clock		H	Emergency Fuel Switch
9	Attitude Indicator	**19**	G – load		I*	Fuel Filter Deice Indicator and Switch
10	Tachometer	**20**	Voltmeter			*Non- functional
						*Includes adjacent switch

"JUST TELL ME HOW TO START IT"
(THEN GET OUTTA' MY WAY!)

So are you ready to go!? What about the names of the switches!? What about the left consoles?! What do the switches do?! What about the check list?! And for God's sake, **what about the FAA and ATC PROTOCOL?!**

We know that there are those of us, (I include myself), who just purchased this aircraft and suddenly find themselves with less than one hour left in their day.

We know you don't have time to sift through a 400+ page manual typed in number eight font just to separate the starting procedures from the external preflight checklist in order to get flying in a **flight simulator**!

So for you, (and you know who you are), here's a quick, cheap and dirty, step-by-step startup of the **Milviz F86F-30 Saber**. (For the rest of you, don't worry **"Protocol Will Prevail"** in the following pages).

Figure 4: Easy Access, Easy Use

Step 1: Bring up the **Aircraft Configuration Menu** with **"Shift+2".** Then select **"Misc"** in the top right-hand corner followed by **"Ground Power"** and **"Chocks".** (**Figure 1 – Pg 2**).

Step 2: **Left-Click** on the **Engine Master** switch, (**#1, Figure 4 above**).

Step 3: Right-Click the **Battery/Starter** switch, (#2, **Figure 4**). That toggle switch is a momentary switch in the "**down**" direction and will return to the center position after you click on it. **Then, left click it** to move it to the "**Battery**" position.

Step 4: Left-Click on the **Throttle Grip twice**, (Figure 5), which will move the **Throttle** out of the lock position and engage the engine start process.

Step 5: Once your **Engine Exhaust Temp** stabilizes, (about **670°C),** and your engine **RPM** settles,(**Gauges #4 & #10 in Figure 3/Pg 4**), click your "**Ground Power**" and "**Chocks**" in the **Configuration Panel** to remove them and you're ready to go.

Figure 5: The final step is to turn 'er over

The steps listed on page 5 above, are strictly for starting the aircraft and for those who plan to figure out the rest on their own. As you can see there's not much to it, but the truth is, once the external power is disconnected you need to go and **activate/reset** the '**Normal**' mode of the **Flight Control Hydraulic System**, which makes that the 'final procedure' in the starting process, (**#1, figure 7/Pg 7**), among other things.

The point here is that ***'the devil is in the details'*** and if you want to stay in the air you may want to consider the following information which goes into a little more detail. By the way, the attached checklist is only a partial checklist which forgoes many if not most of the typical exterior and interior checkpoints that the F 86 pilot would follow in *"actual"* circumstances.

Remember, the official **North American PDF manual** that's included in this package covers just about every question one may possibly have. And even though it is over 400 pages, **it's incredibly easy to find your way around it and even easier to understand.**

We strongly recommend that you refer to that manual to get acquainted with the aircraft's flight characteristics, special circumstance handling capabilities, and emergency procedures. *(But check out the "**Give This a Try**" section on pg 19).*

In **Figure 6** below the view is of the 'upper' left console against the side of the fuselage: the **Circuit Breaker and Deicing Control Panels**. This is an important panel to all of you who plan to fly above 40,000 feet or in inclement weather!

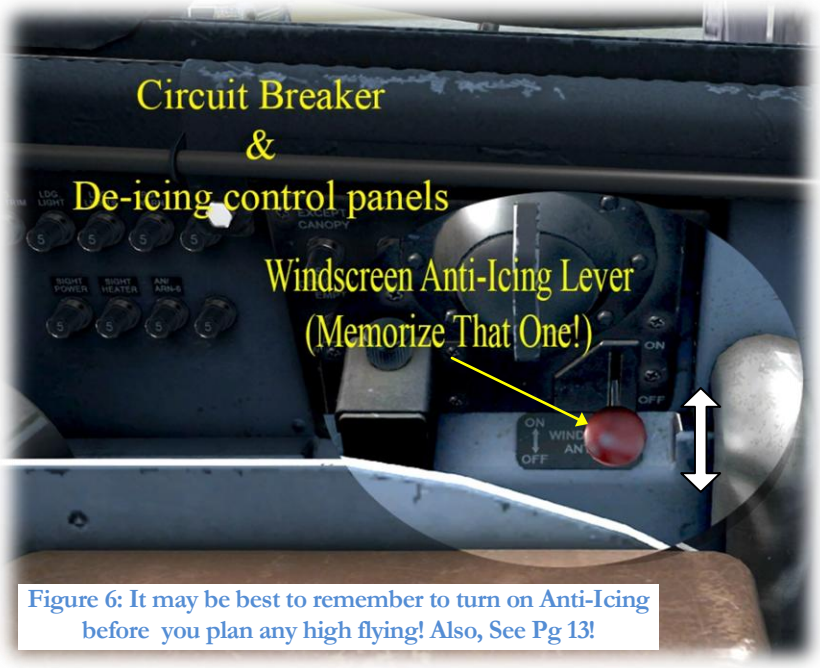


Figure 6: It may be best to remember to turn on Anti-Icing before you plan any high flying! Also, See Pg 13!

The **Windscreen Anti-Icing Lever** is going to be your best friend because it'll defrost your windscreen after it completely ices up and you can't see a thing!

But like the 'real world', it's going to take a little time so you'll to need to use your instruments. Of course, you could just remember to turn it on before it happens…

*Check out **page 13** where that lever and the **Canopy & Auxiliary Defrost Lever** are covered more in detail.*

The procedure that follows is for, and in direct reference to the Milviz F-86F-30 and how it relates to FSX. The check-list's "**Pre-Start**" section is vital to how the aircraft will behave for any and all in flight procedures. Please be sure of the switch and dial positions before attempting the "**Give this a try**" section in the manual.

Pre-Start/Flight Check List

Preflight Check List:

1. **Throttle** Off and Locked
2. **Parking Brake**-On (handle out)
3. **Aircraft Configuration Menu** called up (shift +2)
4. **Generator** Switch-On (#5-figure 8)
5. **Engine master** switch-Off (#1- figure 8)
6. **Emergency Ignition**-Off (#6 – figure 8)
7. **Batteries/Starter**-Off (#2 – figure 8)
8. **Chock** the wheels and connect **Ground Power** (figure 1/Pg 2).
9. **Drop Tank Selector** to "**Outboard On & JETT**" (#1, figure 9/Pg 9)
10. Rudder, Lateral, & Longitudinal **Trim** - Check
11. **Fight Control Switch** to Normal (#1 - figure7)
12. **Speed Brake** and **Wing Flap** levers - Check
13. **External/Internal Lighting** - Off
14. **Altimeter** - Check
15. **Directional Gyro** & **Stand-by Compass**-agree
16. **Vertical Velocity Indicator** – Check
17. **Flight Controls** – Check
18. **Radio Compass** – Check

Engine Startup Checklist:

1. **Aircraft Configuration Menu** – **Misc.** view, (**Chocks & Ground Power** should have a check in both boxes)
2. **Generator** Switch - On (#5 - figure 8)
3. **Engine Master** Switch - On (#1 - figure 8)
4. **Battery/Starter** Switch (#2 - figure 8) Right-Click
5. **Battery/Starter** switch – Left Click to On position
6. Click **Throttle** to **Outboard Position** when engine RPM reaches **3%-9%** (figure 3 Gauge 10/Pg 4), then once more at **10-15% This Happens Quickly!**
7. Right Click **Hydraulic Pressure Selector** switch to "**Normal**" pos. (#F- figure 3 /Pg 4)
8. Right Click **Flight Control Switch** to "Reset" (#1- figure 7)
9. Check/Set **Parking Brake**, remove checks from "**Chocks" & "Ground Power**" boxes and close **Aircraft Config Menu**.

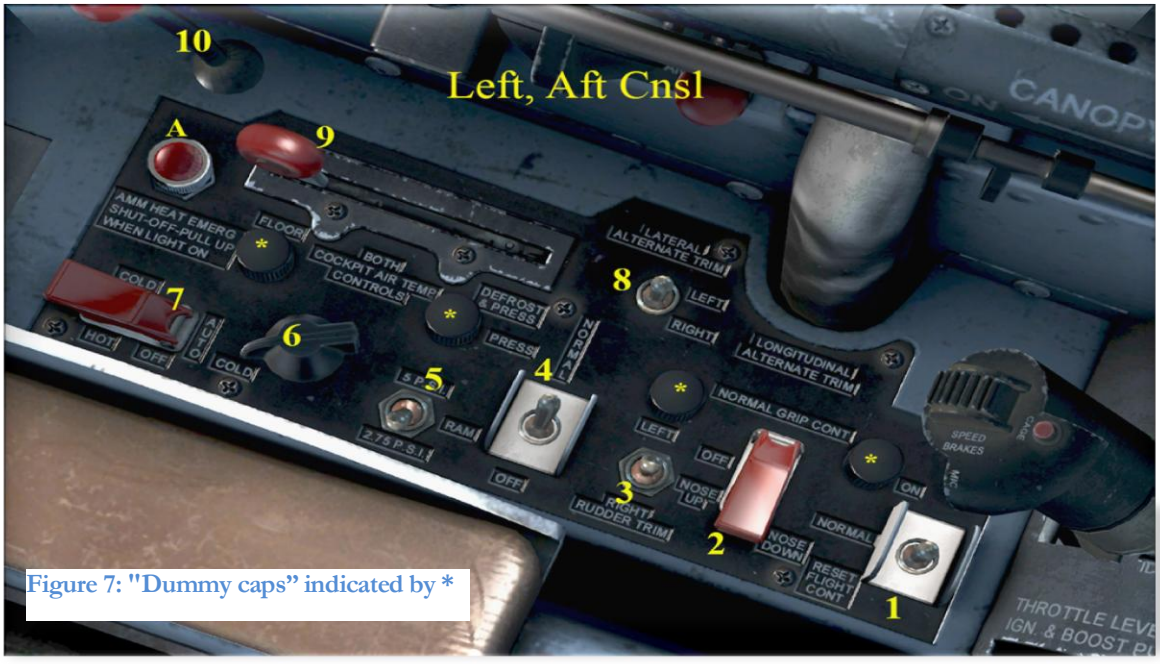


Figure 7: "Dummy caps" indicated by *

Page 20 covers the **Startup** and **Shutdown** procedures a bit smoother. You may find that list preferable. Check it out!

Figure 8: Starter Panel Layout

ID#

1	**Engine Master Switch**	First switch in starting sequence
2	**Battery – Starter Switch**	Second switch in starting sequence
3	**Stop Starter Button**	Used only when emergency restart is necessary
4	**Exterior Lighting Intensity Switch**	Dimmer
5	**Generator Switch**	Usually always on
6	**Emergency Ignition**	Used only for in-flight starts
7	**Fire Extinguisher Switch**	
8	**Compass Slave Button**	
9	**Standby Compass Illumination**	
10	**Flash/Steady Ext. Light Selection**	

You just gotta' love the early 50s when it came to their "Shoot from the hip" mentality. I mean, they didn't use "refuse receptacles", no! They used trash cans!

And they didn't have "call waiting" by thunder! They had "hello" and "goodbye"!

As soon as you look at the consoles of the F 86 you see the simplicity and straight forward labeling throughout the entire cockpit.

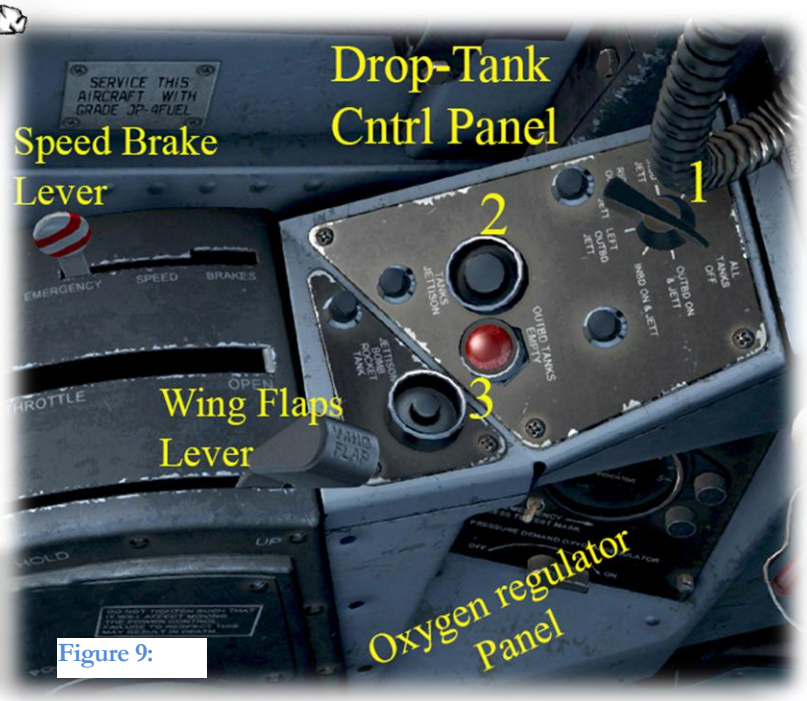
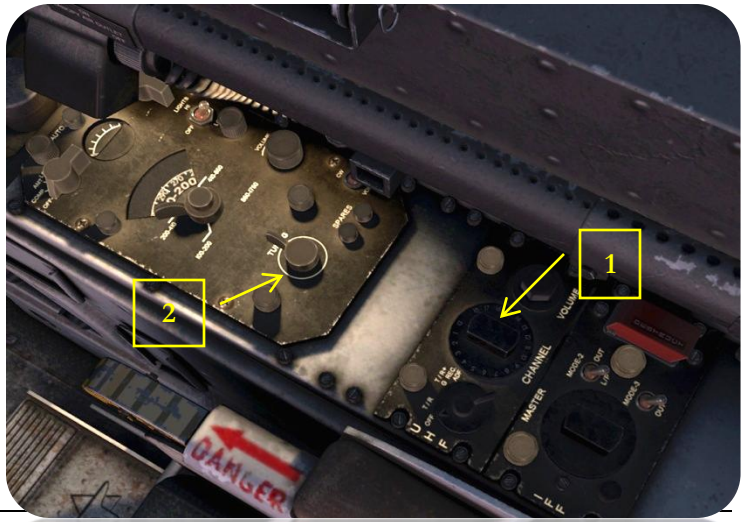


Figure 9:

Take the "drop tank control panel" for instance; you want to drop your fuel tanks? No problem, just dial the selector to the ones you want to let go, (**1**), and push the **"Tanks Jettison"** button, (**2**).

It's the same way for the radio; select the frequency with the large dial and **fine-tune it** with the small one*****. Note that you can assign frequencies to the **Selector**, (#1 below), on the **UHF/IFF panel** through the **Aircraft Config Menu**, (**Shift + 2**), as shown on page 2 and do the fine tuning using the "**+/-**" signs as well.

So you can go ahead and put away your slide-rule, (that was the 1950s portable computer, kids), and return your copy of Webster's Dictionary to your local library, (that's a building where… aah never mind).



*****Please refer to the **"Tips n Tricks"** page for location of the '**hidden course-tuning point**', (#2), in addition to some tips on how to use the **ACM's** frequency storage/assignment options.

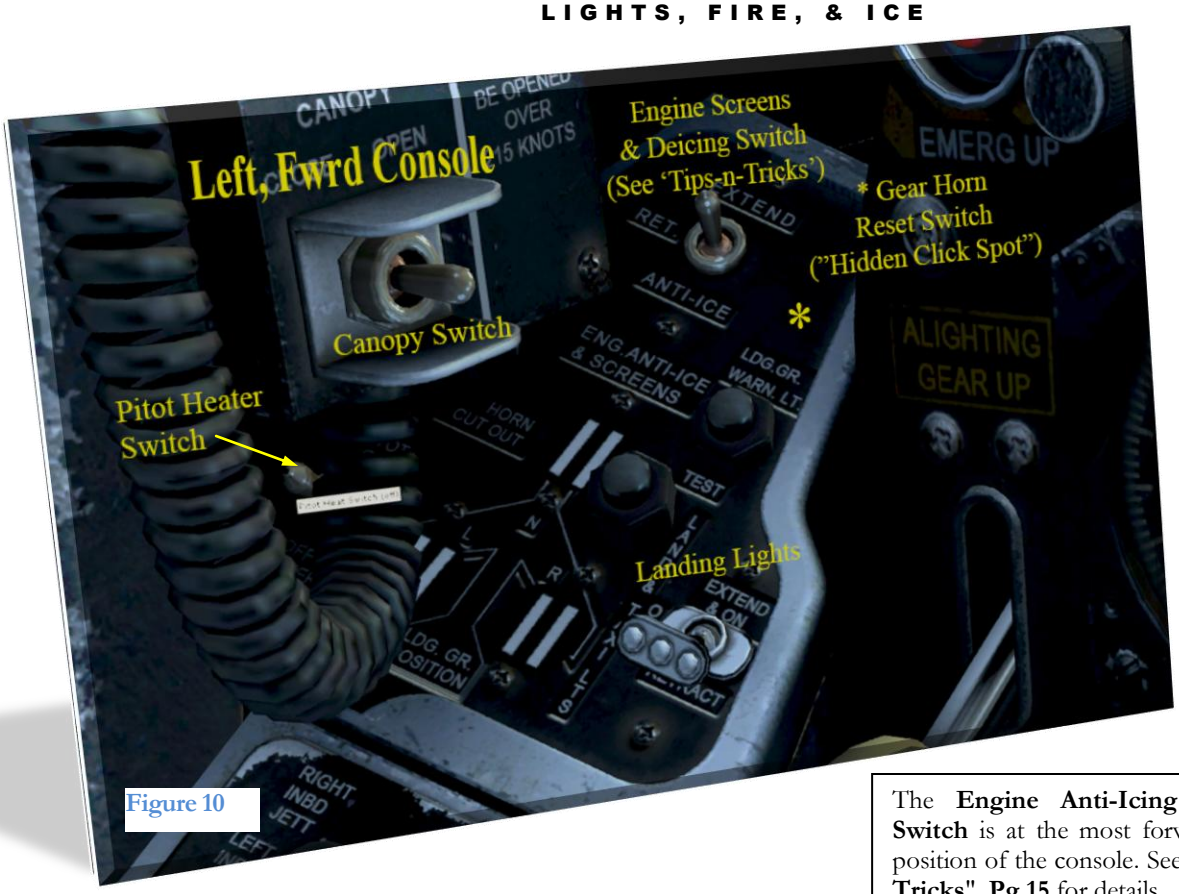


Figure 10

The **Engine Anti-Icing Screen Switch** is at the most forward, left position of the console. See "**Tips n Tricks**", **Pg 15** for details.

It's not hard to tell what's going on for most of the **Left, Forward Console**. They 'call 'em like they see 'em' and once again, they don't get fancy. The **Canopy switch**, **Landing Lights switch**, and **Landing Gear Position Indicators** do precisely what they're labeled.

The **Pitot Heater switch** is covered by the coiled wire and it does indeed work! It and the **Gear Horn Cut Out*** are the only two things about the F-86 that make you stop and wonder what the engineers were thinking when it came to 'easy access'.

LANDING LIGHTS:
The F-86F-30 Sabre has some interesting lighting. When the landing lights switch is in the "**Extend & On**" position, two lights, (relatively close to each other and side-by-side), flip out from underneath the F 86's fuselage just ahead of the nose gear well. The right-hand light, (**starboard**), is one of two landing lights which only illuminates when there is no weight exerted on the gear.

The left light, (**port**), is the second landing light and a taxi light all in one. When the switch is in the "**Extend & On**" position and the aircraft is on the ground with weight exerted on the gear, the left light changes position slightly to about 80° and is the aircraft's taxi light. So, with no weight on the gear the two lights illuminate as landing lights.

Maximum airspeed while these lights are extended is 185 kts. The "**Retract**" position retracts the lights and the "**Off**" position, (**center**), cuts all power to the bus.

***Very important**: The **Gear Horn Reset Switch** is a '**hard to get to switch**'. So a '**click spot**' was placed in the location shown by the **yellow asterisk** above. See "**Tips n Tricks**" for more information.

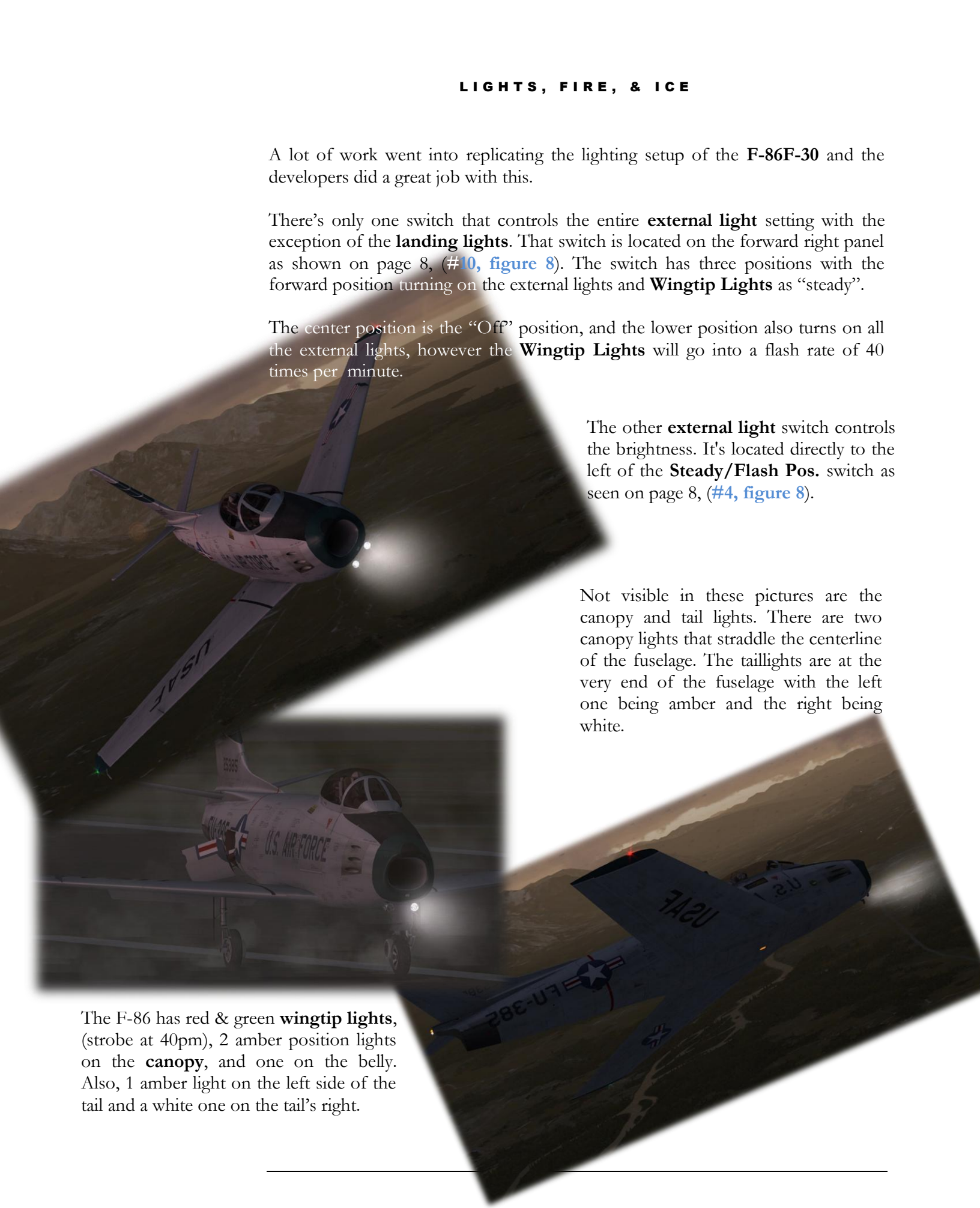
A lot of work went into replicating the lighting setup of the **F-86F-30** and the developers did a great job with this.

There's only one switch that controls the entire **external light** setting with the exception of the **landing lights**. That switch is located on the forward right panel as shown on page 8, (#10, figure 8). The switch has three positions with the forward position turning on the external lights and **Wingtip Lights** as "steady".

The center position is the "Off" position, and the lower position also turns on all the external lights, however the **Wingtip Lights** will go into a flash rate of 40 times per minute.

The other **external light** switch controls the brightness. It's located directly to the left of the **Steady/Flash Pos.** switch as seen on page 8, (#4, figure 8).

Not visible in these pictures are the canopy and tail lights. There are two canopy lights that straddle the centerline of the fuselage. The taillights are at the very end of the fuselage with the left one being amber and the right being white.



The F-86 has red & green **wingtip lights**, (strobe at 40pm), 2 amber position lights on the **canopy**, and one on the belly. Also, 1 amber light on the left side of the tail and a white one on the tail's right.

Interior lighting includes control of lights for the instruments, **Standby Compass** light, (#9, figure 8/Pg 8), two instrument panel floodlights, two console floodlights, and indirect lighting for the consoles and **Center Pedestal**. As shown in figure 11 below, the controls are On/Off rheostat dials that turn on the lights and brighten them when turned in the clockwise direction.

The "**Console & Panel**" lighting is controlled by rotary dial (**A**). The **Primary Instrument Panel** is controlled by Rotary Dial, (**C**). And the **Auxiliary Lights** are controlled by Rotary Dial, (**B**).

Just ahead of the **Interior Lighting** control panel is the **Emergency Override Handle** which is used in adjunct with the **Flight Control Hydraulic Switch,** (circled in left image), and the **Hydraulic Pressure Selector Switch**, (#F, figure 3/Pg 4).

The procedure is outlined in the yellow box below and is basically simple, (as it should be with the use of any emergency equipment). It's used if and when you lose your main **Flight Control Hydraulics** system**.**

The **FCAH** switch, (#F, figure 3/Pg 4), would be placed in the "**Alternate**" position. Then the **Flight Control Hydraulic** switch, (**#1 above**), would be placed in the "**On**" position just before finally pulling up the **Override Handle** in figure 11.

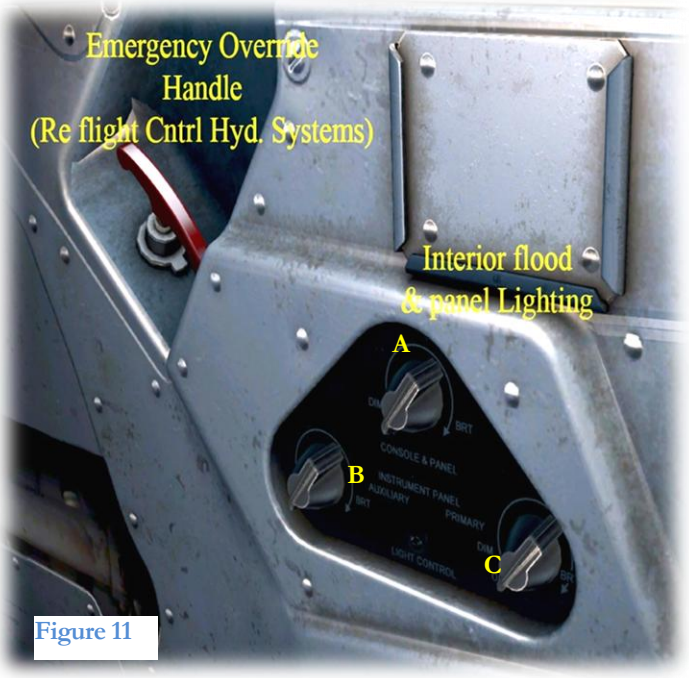


Figure 11

The **Windscreen Anti-Icing Lever** mentioned earlier on page 6 and shown again below, (lower left corner), working in concert with the **Canopy and Windshield Auxiliary Defrost Lever,** (figure 12 below), handles the deicing needs of the aircraft canopy and windscreen.

This is a black knobbed, sliding lever, located on the left side wall of the aircraft and slides forward and aft. **Canopy** deicing is on when slid back, and **Windscreen**

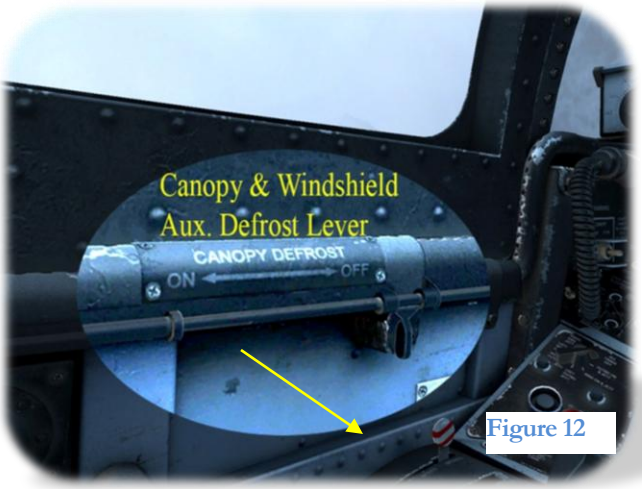


Figure 12

deicing when slid forward. Typically, you would deice the windscreen and then the canopy in that order.

The **Milviz Development Team** worked hard to 'beat' FSX at its own game in order to bring us as close to the 'real thing' as possible in many areas of the F-86's build.

Among the many places that this is evident is in the deicing process that takes place in weather where icing is possible. You may be flying along enjoying the scenery and fail to realize that little by little, your windscreen's starting to ice or fog up!

The process is so realistic that it just creeps up on you. Give it a try and after one or two times of forgetting about it, you'll probably start remembering to turn on the deicing functions *BEFORE* they start happening with a planned or unplanned flight into inclement weather conditions.

By the way, don't forget about the **Pitot Heater** switch while you're at it!

Center Pedestal

At this point **Milviz** has not made the **Center Pedestal Ordnance System Control Panel** operative. However you'll note that all, or most, of the switches can be "moused over" and moved.

That's because it's awaiting the celebrated '**TacPack**' which is nearing completion. Once it comes out, The **Milviz Development Team** plans to make the F-86's weapons functional in a big way! So watch for it!

My primary goal of keeping this guide as 'light' as possible is met by leaving out superfluous information. For that reason, it will not cover the F 86 weapon system however the NA Manual covers the system in great detail.

Check out the following pages for some important Tips n Tricks!

Milviz will keep you all informed of upcoming patches. Join the forum, (***remember, to send a request to gain membership and the ability to post in our Website***), and let us know what you think of the new **Milviz F-86F-30**!

You don't have to go home, but you can't stay here!

It's been a pleasure watching the **Milviz team** work. I haven't been around that many **Professionals** and **Experts** since my last stay in the sanitarium. It's been a fun project.

Well… That's about it kiddies! 'They' tell me I have to go inside now. That one nurse is really pushy if you ask me… "Nurse Screwdriver" er… No, no, her name sounds like a mechanics tool… Oh yeah! '**Nurse Ratched'**, that's her… Nurse Ratched**…**

To obtain permission to post in the Milviz forum please send a request to: roadburner440@milviz.com
http://www.milviz.com/fs/news.php

User Guide Technical Writer
Concept & Design: Rich Petocz
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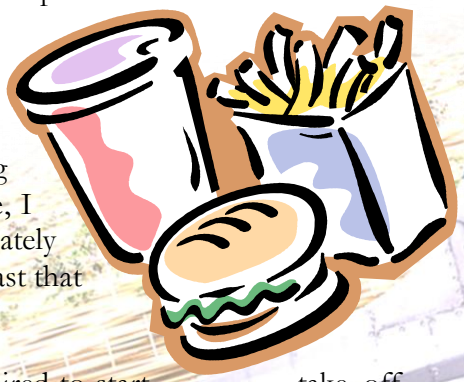
So what does burgers and fries have to do with the **Milviz F-86**? Absolutely nothing… It was a ploy, a trick, ("Tips n ***TRICKS***"), you see? That's the '*Trick*' part of "**Tips n Tricks**".



The fact is that the following information is **SO IMPORTANT** for you to read, that in giving this section an unusual and entirely unrelated title, I hoped to bring most people directly here immediately after reading it in the **Table of Contents**… At least that was the idea.

Even though the guide covers all the points required to start, take off, and land the **Milviz F-86F-30**, the user still needs to know about some additional and very important information to help them experience the full immersion of the aircraft in their flight simulator.

Read me First, Important!:

An important "**Read Me First**" file was included in the download package. This file references the user to add a line in their **FSX Camera Config file** to eliminate **'light bleed'** in the cockpit. Read that file for more information and a clear, step-by-step procedure to follow.

User Monitor Aspect Ratio Adjustment:

Milviz realizes that some customers may have a monitor with the **4:3** aspect ratio, (basically square), while others will have **16:9** monitors, (wide). The **Milviz** F-86F-30 is set to install with the **16:9** aspect ratio monitors. But they included a panel that will work correctly with **4:3** aspect ratio monitors for those who want it.

Just navigate to your "**Milviz** F-86" "**Airplane"** folder, then to the "**Panel"** folder, (**Microsoft Games/Microsoft Flight Simulator X/Simobjects/Airplanes/Milviz F-86/Panel**)**.** Open that folder and you will see, among other things, two **Notepad files**. One is named "**Panel**" and the other is named "**Panel_4-3**".

Simply:
Step 1: Rename the "**Panel**" file "**OrigPanel**" (if you prefer not to delete it)
Step 2: Rename the "**Panel_4:3**" to "**Panel**"

That's it but do it in that order. Now when you open the F-86 in FSX it'll display in the **4:3** aspect ratio.

Hidden Click Spots:

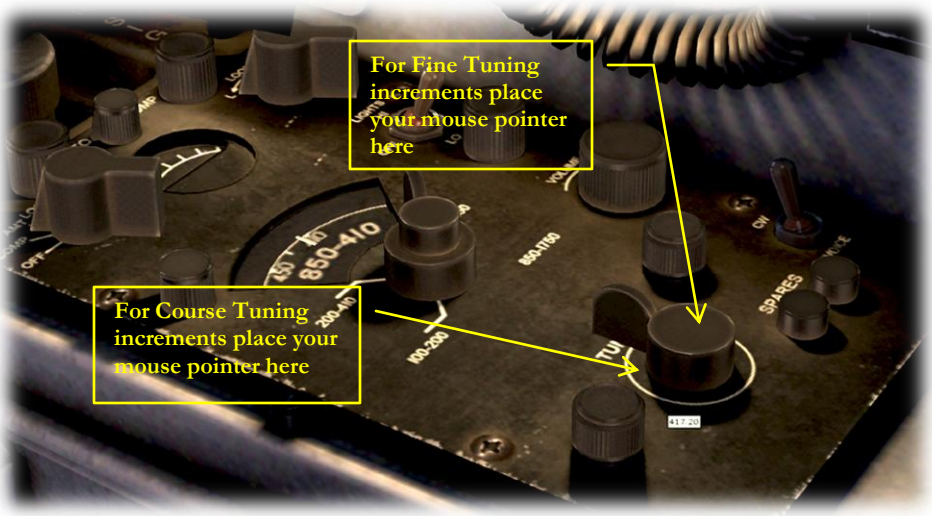
The actual F 86 has some "**hard to reach**" places when sitting in the FSX sim cockpit. **Milviz** always keeps the customer in mind as much as they do the quality of their product. Such is the case with the F-86F-30 **Gear Horn** kill switch for instance.

Figure 13: Gear Horn Click Spot

Each time you pull your throttle back and the **F-86 engine RPM drops below about 73%,** you'll set off a very annoying tone and I guarantee that you WILL want to turn it off as soon as you can.

The actual switch is located on the **Forward Left Console**, in a difficult spot to see let alone get to. So navigate your mouse in the area where you see the **yellow asterisk**, (figure 13 in image on left), and you'll note that your pointer changes to a hand image. That's the click point. (**Note that the yellow asterisk shown is strictly for reference in this guide and not on the panel of the actual sim aircraft**).

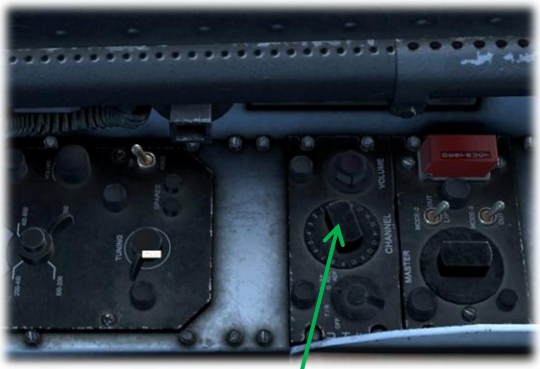
Another '**Hidden Click Spot'** is located on the **Radio Panel** just inside the **white ring circling the tuning dial**. To make adjustments to the **main frequency numbers** place your mouse pointer anywhere **inside the area** surrounding the **white ring** and between the dial itself.



Roll the mouse wheel to change the frequencies before the decimal, (**course tune increments**).

Place your mouse pointer **on top of the dial** and roll the mouse wheel to change frequencies after the decimal, (**fine tune increments**).

You can also assign preset frequencies to the selector on the **UHF/IFF** panel. When you press **shift +2** and call up the **ACM** panel, click on the "**Radio**" button in the top right corner.

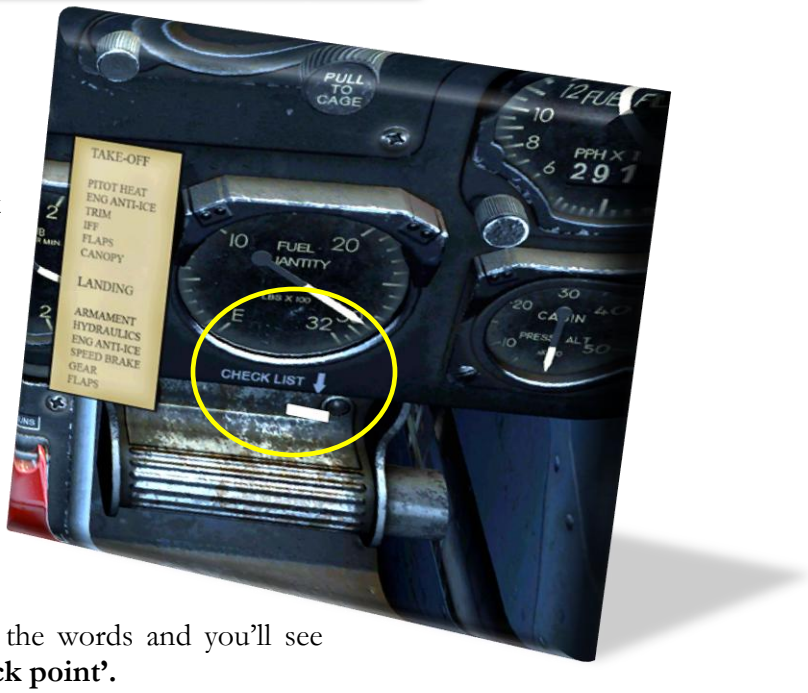


The ACM Radio panel references the preset frequency selector in the cockpit.

Then follow these steps to preset a **channel selection**:

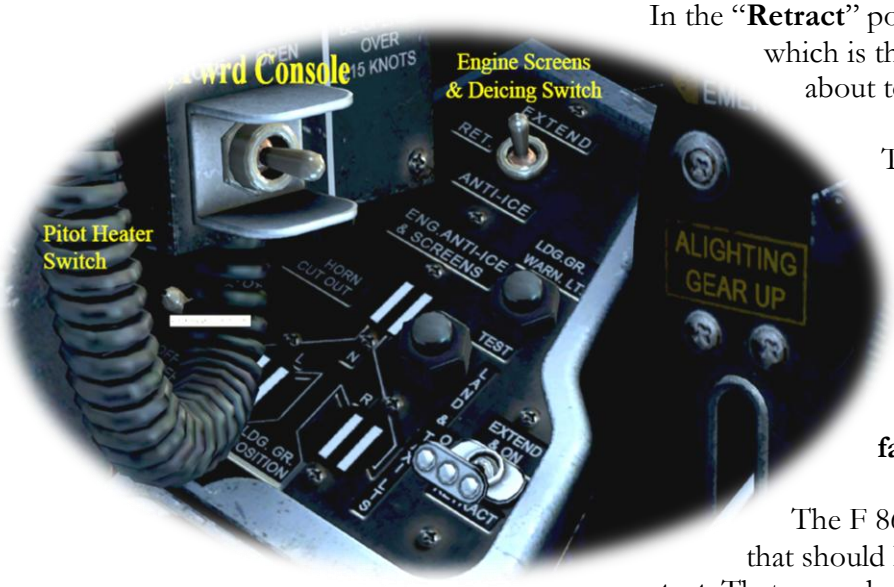
1. Click the **box of the frequency** associated with the **channel selection position** you wish to change, **(A)**, and it will become highlighted.
2. Click the **plus**, (**+**), or **minus**, (**-**), **(B),** to make a change to the frequency in **course** or **fine** increments in the selected box.
3. Click on the **frequency box** again to **set/enter** your desired frequency to the **channel number selection**.

The final **'Hidden Click Spot'** is meant to pull up the **'quick check reference list',** (can also be pulled up with **Shift + 3),** and can be found just under the **Fuel Quantity Gauge** on the **Instrument Panel** where you see the words "**Check List**", (circled in image on the right).



Just place your mouse over the words and you'll see your pointer change to a '**click point'.**

Engine Anti-Ice and Screen Switch:
This is a three position switch. In "**Extend**" eight air intake screens are deployed to protect them from blowing debris when on the tarmac.



In the "**Retract**" position, all eight screens are retracted which is the position they should be in when you're about to fly.

The third position is "**Anti-Ice**" and is used when the aircraft is approaching ice conditions or anticipated ice conditions.

If the switch is left in the "**Extend**" position and the aircraft is flown into icy conditions, you stand a good chance of having a **catastrophic engine failure**.

The F 86 will almost certainly flame out and if that should happen you'll need to do an **in-flight restart**. That procedure is covered step-by-step in the "**Give This a Try**" section, (check it out!). So remember to place that switch in the center position, (**Retract**), whenever you fly and you won't have to worry about it.

A few other things to keep in mind had been mentioned previously but here's a quick little refresher:

- When you load the F 86 into FSX it automatically loads with full fuel, in a clean configuration, and **with 950 pounds**, (about 1800 rounds) of 50 caliber rounds for its machine guns.
- When icing starts to build on your windscreen and canopy, turn on the windscreen deicing lever, wait until your windscreen defrosts , and then slide the "**canopy and windscreen auxiliary defrost lever**" back to its rear position to defrost your canopy.
- You'll note that the Joystick and all control systems will not move until the aircraft has electrical power through the Battery and/or Generator.
- The F-86F-30 can only lock it's flaps to the full down or full up position.

GIVEN FOR YOUR PERUSAL
(GIVE THIS A TRY)

When you were a kid, did you ever have the urge to 'push' things a little past the recommended point? You know what I mean, like when you got the train set for Christmas and your dad told you to make sure you don't turn the dial past the point where the green and red colors meet?

Or that battery-operated robot you got? You were positive it could shoot lasers from its eyes if only it had more power. So you cut the electrical cord from your mom's lamp, figured out how to twist the wires to the 'bots wires, and plugged it into the wall socket… and it did shoot laser beams from its eyes! … But it could only do it once…

Things got a little blurry after that… I remember something about 'finger-painting' and "meds"… But they let me out when I turned seven and it was all good.

My point is that we all like to "experiment" a little so why should things be any different here?

The following pages are actual maneuvers that I'm sure most F-86 pilots would be able to do. However you, the FSX pilot, may never have considered trying them with your own little *twist* thrown in.

Before you do any of the following step-by-step maneuvers, go into FSX's "Realism" settings and move all the sliders to the far right. Put a check in everything that has a box, like the **G-Force box** and the **Crash Detection** box etc.. In fact, make very sure you've turned on the **Crash Detection** if you want to try the **Belly Landing** steps below! (That's what makes it challenging).

Then give it all a try the "right way" followed by a little creativeness on your part. Like following the **Spin Recovery** maneuver steps but allowing the plane to speed up the spin before you try to regain control, (a lot harder than it sounds).

Or go for a Hammerhead Stall or Tail Slide after you've learned how to get out of the stall the "right way". There are plenty of other maneuvers in the 400 page manual by North American as well. These are but a few that I liked, (you have got to try the **In-Flight Restart**).

The following are steps to various maneuvers such as: stalls, spins, and in-flight restart, etc.. This section also includes preparation for takeoff using the "**Trim Light**" guide, and **Normal Startup/Shutdown**, (without all those extra blue reference lines).

Starting Procedure for the Milviz F-86F-30†:

1. **Emergency Generator** - on
2. **Tank Jettison Dial** to "**Outboard on and Jett**"
3. **Parking Brake -** on
4. Press shift +2 to open **Aircraft Configuration Menu** then press the **Misc** button and place a checkmark in **Chocks and Ground Power**
5. **Engine Master** switch **-** on
6. **Battery/Starter** switch Right-Click then Left-Click to place switch in the **Battery on** position
7. **Throttle Grip** Left-Click once and then again when the engine RPM reaches 10 to 15%, (this happens quickly).
8. **Flight Control Aux Hydraulic System** switch Left-Click to **Normal** position
9. **Flight Control System Reset** switch Right-Click
10. Remove checkmarks from **Chocks and Ground Power** on your **Misc Panel** and then press shift +2 to remove the **Aircraft Config Menu**
11. End Startup procedure

Normal Shutdown Procedure for the Milviz F-86F-30:

1. **Wheel brakes** hold, (**chocks** and/or **parking brake** on) - typically the **Throttle** would be set to idle the engine someplace between 65 and 70% for two minutes allowing it to cool. But in emergency situations the engine may be shut down immediately -
2. **Communication Equipment**-off
3. **Throttle**-off, (Right-Click two times to place it in the **inboard position**. This will turn the engine off.)
4. **Engine Master** switch-off (when engine spools down to 10% RPM or less)
5. **Battery/Starter** switch-off
6. **Lighting**, **Emergency Ignition**, etc. switched to the off position with the exception of the **Emergency Generator** switch which should be left in the on position.
7. End Shutdown Procedure

† **Please see page 7 for preflight checklist procedure**

Takeoff Trim Setting and Take off Speed:

1. Hold **Toe Brakes** on
2. Adjust your **Trim** by pulling back the **Elevator Trim Switch** on the stick until the **Red Indicator Light, (**#E, figure 3/Pg 4), on the **Instrument panel** illuminates. (Note that if you pass up the stopping point the light illuminates and then goes out quickly. Simply move your **Trim Switch** in the opposite direction to "find the light"). **Also note that the Trim light will only stay on for a few seconds after you have found it.**
3. **Flaps** to full down, (the F-86F-30 has only one locked, flap position; **Full Down or Full up**)
4. Advance **Throttle** slowly but steadily until engine RPM reaches **96% to 100 %**
5. Release **Toe Brakes**
6. Upon reaching liftoff speed, (roughly 120 to 138kts. considering various factors), **ease back the joystick** to about a 10 degree starting climb
7. Raise gear and flaps after about 160 kts but **before reaching 185 kts.**
8. Retract the landing lights **before reaching 180 kts.**
9. End procedure

In-Flight Stall Procedure:
There's not much to a stall, simply raise the nose while at the same time steadily bringing your throttle to idle and when you get to your minimum speed which in the case of the F 86F is someplace between 110 and 120 kts., (aircraft in clean configuration and 10,000 feet MSL), it stalls.

1. Climb to an altitude that will give you plenty of time to think through the recovery process, (I typically go to about **30,000 feet MSL** so I don't have to 'hurry'.)
2. Carefully pull back on the stick placing the aircraft into an ever increasing climb while simultaneously bringing the **throttle to idle** position.
3. When the aircraft slows to about 125-135 kts., you'll note a rapid increase in the buffeting as it tries to tell you that you're about to lose significant control, (**not a good time to be texting anybody**).
4. At about 110 kts. or so, the aircraft will **want to yaw** to the left or right.
5. Typically, as the aircraft is buffeting you would **start gently bringing the nose down** while simultaneously, and **gently, applying an increase in throttle**. The F 86 doesn't seem to like aggressive moves when it's in that stall so **be gentle**, and allow your speed to increase and then slowly pull back on the stick to **come to level flight**.

Spin:

When you're at **step 4**, instead of going for step 5, **put the aircraft in a spin** and challenge yourself to get out of it!

1. In step 4 above, allow the aircraft to go nose down on its own as it yaws to the left or right.
2. Leave the aircraft's **throttle in idle** and as it starts into a spin you'll note that it starts going into an **oscillating cycle** that increases in speed and intensity. If you have your **FSX Realism** settings all set to "**on**" you may even **experience a blackout** through increased **G loads**. It's surprisingly **disorienting**.
3. Using the **rudder pedals**, gradually apply a little left or right in whatever direction **opposite the spin** and allow the aircraft the catch-up to the input. **Do not use your ailerons**! That will really screw things up.
4. As the aircraft **regains its speed** slowly start applying **throttle** and then pull the stick back gently bringing the nose of the aircraft up and to a level flight attitude.

End procedure

It gets ever more difficult the longer you permit the spin to continue before you start applying corrective rudder. You definitely want to try it when you have a lot of room between you and the nice pedestrians below, (or not).

Remember, set all the sliders on full realism and make sure the Crash Detection box is checked in your FSX settings!

Belly Landings:

In the 1959 picture "**The Hunters**"[3], if **Robert Mitchum** wasn't stealing the wives from his wingmen or backhanding **Robert Conrad**, he was shooting down MIG 15's and belly landing his F 86, (well…at least once anyway).

The **North American PDF** manual does state that it's safer to land on unprepared surfaces with your gear down whenever possible.

But that kind of takes the fun out of it, (even though I'm sure in real life a forced landing of any kind can be "exciting" enough with the gear down or not), so for the following steps keep your gear up as if they were damaged.

Note that if you have any ordinance or fuel tanks on the wings, get rid of them someplace over **downtown Burbank, California** but keep the empty tanks to add some cushioning to the '**touchdown experience**'.

Belly Landing Procedure:
(These steps will not include any steps that haven't got a place for simulation)

1. **Jettison** any **tanks**, **bombs**, etc. but note that if the fuel tanks are empty leave them on the wings to help cushion the ride, (unless the terrain chosen has many obstacles that the tanks could catch on).
2. **Wing flap lever** down on final approach, (if they work).
3. **Speed brake** switch out or adjust to maintain proper landing speed, (about 10kts. higher than touch-down speed)
4. Turn off **Throttle, Engine Master, Generator, and Battery** switches just before final touchdown is **ensured**.

It's not as easy as it sounds because if you let that plane get a little sideways, it's over. But once you do have it down, go into the **FSX Weather Panel** and try it with a **storm setting and/or an 8kt.+ crosswind.**

[3] Actually, it's a pretty darn good movie does a fair job with depicting the F 86 combat techniques as well as general and tactical maneuvering.

In-Flight Shutdown and Restart:

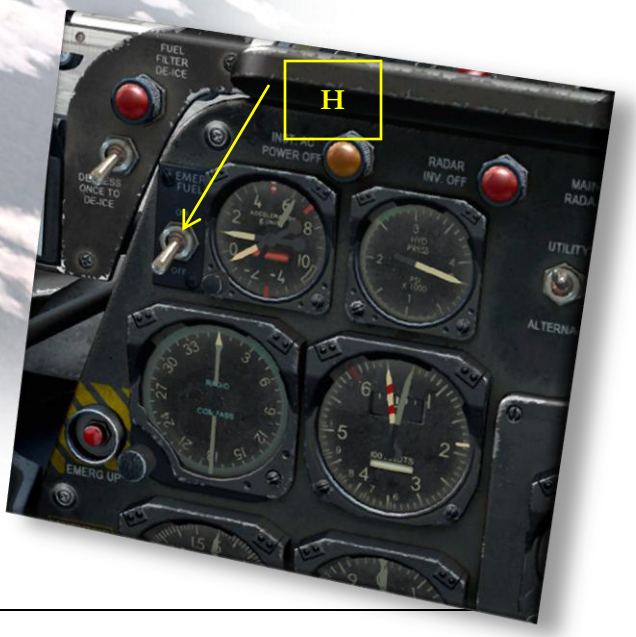
Make sure you're at a nice high-altitude, (something like 20,000 feet MSL), so that it gives you enough time to throw the switches throughout the process. Although there are several versions of emergency startup procedures, (such as an "immediate restart" which deals with restarting the aircraft very shortly after a flameout for instance), the procedure shown below is applied when there has been a longer gap of time between the flameout and an attempted restart:

In-Flight Engine Shutdown:

1. Commence shutting down the aircraft by first making sure that the **Throttle is in idle** position and you are in level flight. Allow aircraft to slow to somewhere around 200kts. and then keep it there, (I typically raise the nose to speed up the process).
2. **Battery/Starter** Switch – check
3. **Exterior Lighting and deicing options -** Off
4. **Right-Click** the **Throttle** to its **inboard** position, (**Right-Click x 2**)
5. **Engine Exhaust Gauge** should show **0 C**. You can go "outside the aircraft" and hear the engine wind down. Inside the aircraft it'll be noisier because of the **wind-milling** effect of the turbine. This effect will also register the **Engine RPM** between 26-35%.
6. Switch off **Engine Master** Switch

In-Flight Engine Startup:

1. **Emergency Generator** – check
2. Switch on **Engine Master** Switch, (you can do this before or after step 3)
3. Nose the F 86 down and increase speed between **185 and 225 kts.** (Our F-86 'likes' to start up at the high end of the required engine RPM span, (around 34%), which is about 225 kts.
4. Switch on **Emergency Ignition**
5. Switch on **Emergency Fuel,** (**#H, Below**)
6. **Left Click Throttle twice** then advance smoothly as engine turns over
7. **Emergency Ignition** switch off, (when engine reaches about 90% RPM)
8. **Emergency Fuel** switch off when smooth engine operation has been established
9. End In-Flight Startup procedure



GIVEN FOR YOUR PERUSAL
(GIVE THIS A TRY)

Instructions for Complementary GPS Addition

(**Milviz** takes no responsibility for any damage that may occur from the users attempt at installing these edits.)

For those of you who like having a GPS in your aircraft regardless of whether they exist or not in the "real" aircraft, you can add an 'FSX type' GPS by adding the information below into the F-86's panel configuration file.

If you're not comfortable with going into these files or you have no experience with it then I do not recommend you try this. Also note that the first step is the most important step:

- Navigate to your "Airplanes" folder located in your "Sim objects" folder of your FSX folder.

- Open the "**Milviz** F 86" folder and then open your "Panel" folder. There you will see a file named "Panel", (only the file named precisely that way), which is your panel.CFG file for the F-86.

1. **MAKE A COPY OF THE PANEL CONFIG FILE BEFORE DOING ANYTHING!** (Renaming the file something like "OrigPanel" is typically what I do)

2. Open it and at the very top of the file you will see something like this:

```
[Window Titles]
Window00=
Window01=Aircraft Config
Window02=Checklist
Window03=XML Test
```

Note that regardless of what your window titles look like, the point is to add the entire line as shown and then, if needed, change the number to the next largest number in sequence or any unused number between 1 and 8. In this case "06" is chosen just to give some "room" for any additions/patches.

3. Insert "Window06=GPS" directly below the last line in the list. It should look like this after your done:

```
[Window Titles]
Window00=
Window01=Aircraft Config
Window02=Checklist
Window03=XML Test
Window06=GPS
```

4. Then scroll down to the very bottom of the file and insert a space or gap just below the last typed line and copy and paste the following:

```
[Window06]
Background_Color=0,0,0
size_mm=456,378
window_size=0.5
position=8
visible=0
ident=GPS_PANEL

gauge00=fs9gps!gps_500, 0,0
```

5. Making sure that the information is the last bit of information in the file as shown here:

```
[Default View]
X=0
Y=0
SIZE_X=8192
SIZE_Y=6143


[Window06]
Background_Color=0,0,0
size_mm=456,378
window_size=0.5
position=8
visible=0
ident=GPS_PANEL

gauge00=fs9gps!gps_500, 0,0
```

6. Then save the file and now when you open the aircraft and press **shift+7** the GPS will open. If for some reason a mistake was made and something goes wrong, remember that you have your backed up **Panel config** file and all you have to do is replace the panel file that you edited with your backup for the aircraft to operate as it did before you made the edit.

Here's the layout in normal black font if you prefer:

```
Window06=GPS


[Window06]
Background_Color=0,0,0
size_mm=456,378
window_size=0.5
position=8
visible=0
ident=GPS_PANEL

gauge00=fs9gps!gps_500, 0,0
```